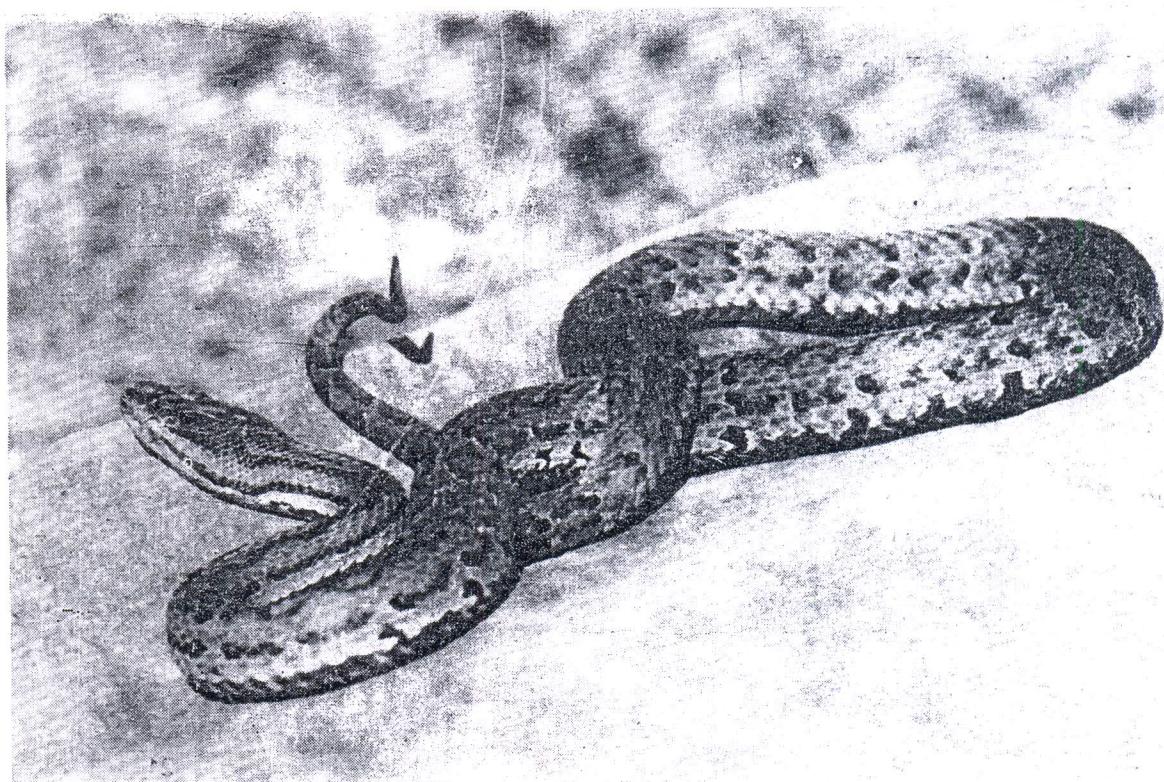


HAMADRYAD

10 : 1 & 2

JANUARY
&
MAY

1985



Agkistrodon himalayanus

CONTENTS

Title	Page No
Herp News	1
Letters - from-the-Dark-Unknown Dept.	3
In search of the Himalayan pit vipers	10
The Legend of Zuhn Shah Sahib	11
Crocodile Conservation and Management Conference	13
RATS	14
Case history of a snakebite	15
Viper bites more common in State	16
Marine turtle drain	17
The freshwater turtle trade in Madya Pradesh Papers presented at Symposium on Endangered Marine Animals and Marine Parks	18
An Instance of a male mugger mounting A nesting female at Madras Crocodile Bank Trust	20
Nesting activity at Madras Crocodile Bank Trust	20
Reaching the people	21

Dear reader,

Events at the Snake Park over the last year show how easily - and quickly - institutions crumble once their basic objectives become confused. When Rom started the Park in 1969 his priorities were public education, research and conservation. But because of problems among the Trustees, these objectives are nowhere to be seen; which is why the editors of this issue like many others have disassociated themselves from the Park. We acknowledge and appreciate the many letters of support to us personally and in the press.

One of the casualties of this upheaval has been Hamadryad which fell into a demoralized silence for a while. But it is now up and about again, based at the Crocodile Bank where we now concentrate our activities. The good shepherd really has been Dr. Jeff Lang of the University of North Dakota who has donated a cyclostyling machine and other equipment for the use of Hamadryad.

Since this year's subscription money for Hamadryad is in the Snake Park account and therefore not accessible we are trying to find sponsors for the next issue. In any case we will do our best to keep this modest herpetological newsletter alive. Its closest geographical neighbours are 'Hardun' from Israel and 'The Snake' from Japan, so we must try and continue to fill the gap. The many queries from readers have certainly acted as spurs to our somewhat jaded flanks. Dr. Salim Ali wrote recently: 'I am glad 'Hamadryad' is being reincarnated. Its leaving for "heavenly abode" permanently would have been deeply mourned by admirers like myself.'

Zai Whitaker
Editor
Crocodile Bank
Vadanemmeli Village
Perur P.O.
Mahabalipuram Road
Madras 603 104

HERP NEWS

FIELD SURVEYS: Satish Bhaskar, India's well known marine turtle man, has been in the province of Irian Jaya in Indonesia for almost a year studying the nesting patterns of sea turtles with a view to formulating management and protection strategies. The project which ends in October 1985 is administered by World Wildlife Fund - Indonesia and funded by the European Economic Commission (EEC).

Ron Whitaker spent four months (upto February, 1985) surveying the crocodile resource in the same province for WWF - Indoensia.

Shekar Dattatri spent 15 days in Kashmir to locate and photograph the Himalayan pit viper (Akistrodon himalayanus).

SURVEYS: Ron Whitaker presented a paper entitled 'Conservation and development in the Andaman Islands' at the seminar 'Conservation of Indian Heritage' held during the Festival of India at Cambridge in September 1984.

He also participated in and presented papers at the crocodile conservation and management conference in Darwin, Australia in January this year.

MCBT Manager Andrews participated in a week long symposium 'Endangered Marine animals and marine parks' conducted by the Central Marine Fisheries Research Institute (CMFRI) in January this year. Ron Whitaker's 'Rational use of estuarine and marine reptiles' was one of the herp papers presented at the symposium.

A two day informal croc workshop was held at MCBT in April this year. This gave two key croc workers from Uttar Pradesh and Andhra Pradesh a chance to see the research being carried out at MCBT by Dr. Jeff Lang.

VISITORS: Mrs. & Dr. Roger Conant, Adjunct Professor, The University of New Mexico, Albuquerque, spent a few days in Madras in December 1984 admiring and photographing the Himalayan pit vipers collected in Kashmir by Shekar. Dr. Conant, one of America's foremost herpetologists and author of the 'Field guide to reptiles and amphibians of Eastern and Central North America' is currently working on the completion of a monograph on the Akistrodon group. Dr. Conant will appreciate receiving interesting material on Hypnale hypnale and A. himalayanus.

Mrs. & Dr. Walter Auffenberg, Curator of Herpetology at the Florida State Museum also spent a few days in Madras in December 1984 working at local Varanus bengalensis habitat. They were provided with expert field assistance from the Trula Co-op.

PROJECTS: The Irula Co-op.'s Rodent and Termite Extermination Squad (RATES) became operational in January this year and promises to be a big success. The project is funded by OXFAM.

A fresh water turtle display and breeding pond constructed in the fashion of a temple tank has been completed in the Croc Park thanks to Wildlife Preservation Trust, International. Several species of softshells including Trionyx gangeticus, T. leithii, and Chitra indica and hardshells such as Melanochelys trijuga, Kachuga kachuga, K. dhongoka and Hardella thurgii can now be viewed at close quarters for the first time. The enclosure appears to be a big hit with both, the turtles as well as the visiting public.

* * * * *

A NOTE ON U.S. SUBSCRIPTIONS: U.S. subscriptions may be made out to Dr. Jeff Lang and mailed to: Dr. Jeffrey J. Lang, Dept. of Biology, The University of North Dakota, Box 8238, Univ. Station, Grand Forks, North Dakota - 58202, USA.

BACK ISSUES: A few copies of some issues are available at U.S. \$ 2.00 each; others can be xeromed at about 10 cents U.S. per page plus postage (specify air mail or sea mail).

Letters-from-the-Dark-Unknown Dent.

I. Satish Bhushan, the sea turtle man is on an extended contract in Irian Jaya for World Wildlife Fund-Indonesia with funding from the European Economic Commission(EEC). He camps on remote beaches on the "vogelkopf" or bird's head peninsula of the island to enumerate and study the ecology and breeding biology of the largest sea turtle, the leatherback (*Dermochelys coriacea*). Last June and July Satish watched 200 leatherbacks crawl up per night on his study beach. He estimated that over 18,000 females use that beach each year to nest, a larger population than at the well known leatherback rookery at Trongganu in Malaysia. Here are some excerpts from his letters.

"Batu Rumah, 6:30 AM, Wednesday 15th August, 1984:

Things are really hectic here - I have stopped painting turtles as the paint does not stay on for 10 days, and now am busy counting every turtle that nests on a 20 km stretch. I walk the 20 km every day and Nasak or Jacob takes me back to camp in the inflatable. Nasak trapped a wild pig in the jungle just behind the beach, and its stomach contained leatherback hatchlings - it was eating turtle eggs every night, so pigs have to be destroyed - anyway these pigs had been introduced from another part of Indonesia many years ago by the Dutch, so no harm destroying them. Every day between 50 and 130 leatherbacks are coming to nest, and this is not the peak season which passed in June-July, so this beach is the best in the whole of Asia for leatherbacks, and the second or third best in the world.

So far the sea has never been rough, so it has been easy to get into and out of the boat, wading in hip deep water near the shore. Even if it does get rough, it will be possible to swim about 50 metre from the boat to the shore.

Batu means rock and Rumah means house; there is a big rock shaped like a gigantic but in the sea just away from our camp. Tiny sand flies on the beaches here make life somewhat lousy - the worst is when one has to strip for a bath or bare one's bottom - and I spend at least half an hour every day just scratching from their bites. But on the whole, things are going very well. When Ron was here, we saw 2 leatherback females nesting on the beach in the daytime so he got plenty of good daylight photos. After he left, I searched that good strip of beach every morning between 6-30 and 7-30 a.m and sure enough I got to see 2 more females on the beach and got good photos of them also. Best of all was we followed two of the females out to sea after they finished nesting using the boat and I got some fantastic pictures 1 from 20 feet away - of one leatherback coming up to breathe in the sea - these may be the first close-up sea photos of leatherbacks. Since that turtle was scared of the boat, it held its breath for very long (to avoid us) and when it came up it was quite desperate

for air - so it didn't surface quiet as it usually would, but shot up at full speed - the photo should show almost half the leatherback exploding out of the water - hope it comes out well.

Batu Rumah - 12th September, 1984

I am at a campsite with an Indonesian counterpart and no villages for 10 km or so. Mesak trapped another wild pig which proved to have a turtle hatchling in its stomach, a 4m tiger shark caught by a fisherman near camp had an intact baby dolphin 80 cm long in its stomach (swallowed whole) and also leatherback remains which turned out to be what the fisherman had used as bait to catch the shark, not a piece of naturally predicated meat! Also exposed 3 rolls of films on a school of dolphins, many of them from a distance of a metre from the camera, which was at the boat's nose. This place is really fantastic. One day I caught a 5ft. python - calledular koning (yellow snake) though actually it was dark brown above, with a hint of a yellow line along the flanks, and off-white underneath. I kept it in a bag for photography the next morning, but it escaped overnight - hats off to it. There are 1 metre earthworms here as thick as your finger, which my Indonesian counter - part first mistook for snakes - in fact, he keeps looking under his tent very often for them, for the escaped python, and for centipedes, some of which grow to about 6-7 inches here - in fact he got nipped by a 4" specimen, mistaking it for a peaceable creature! No side effects except psychological. So far I've removed 4 smaller ones from inside my tent. We navigated our inflatable about 5 km up Sungai Koer (i.e. the river Koer) where crocs occur. Johannes Yesmert of Koer says that there is a "white" croc that has eaten a man about 5 km up from the mouth of the river. There are also crocs known to live in the Sungai Moon (pronounced Noan) further east.

II Rom Whitaker was also in Irian Jaya, between last October and February. His job was a survey of the crocodiles and an assessment of the prospects of an industry there, undertaken for World Wildlife Fund Indonesia and Wahana Lingkungan Hidup Indonesia (WALHI) the environmental forum based in Jakarta with funding from USAID. During the survey about 5000km was covered by light aircraft and 2500 kms by boat, most by night and most of it in a small inflatable motorized dinghy and in dugout canoes.

Here's his description of one part of his survey, the Bian Lakes near Marauko.

16/11/84 Camp-Bian River (between Mandum & Selil)

We've set up our base camp here at the site of last year's Euroconsult camp. Convenient because of the bamboo frameworks set up that we can throw our tarp over for shelter. We also have a 4 man tent along, a real nifty one. With us are three Mutting croc hunters - Theodorus, Frans and Alphons for Rp.3000 per day per man and as much tobacco as they can consume. I'm

sitting on the riverside, it's early afternoon, hot but not too bad - only problem are the zillions of flies that won't leave us alone. Fished for a while this morning, mostly cat fish - tried for barramundi but no luck. I took a walk in the forest behind us for a few hours after a bowl of oatmeal and walked slowly along trying to identify some of the innumerable bird calls. Saw several megapodes close by and found out what they sound like and figured a nest must be somewhere close. Sure enough I came up a huge mound with a lot of fresh soil packed up on top (about 7 feet high and 20 ft. diameter!) - and there was a megapode skulking around nearby. I heard something heavy walking in the bushes and waited. Near my feet were the tracks of a big cassowary so I put one of my chappals near the track for size and took a picture. Just then this strange head with angry looking eyes peered out of the bushes at me - a big male cassowary! Very exciting to see and it wasn't too scared, just ran a few steps then resumed its stately stroll. A few minutes later, on down the path it crossed in front of me and I got a nice clear view. About 16 hornbills flew over all at once and the noise of their wings was really something.

Our inflatable boat is down near my feet in the river and looks a bit sad as one of the chambers had sprung a leak. We've repaired it and now wait for it to dry. Last night we used the dugout that we towed along behind us yesterday to this camp with our mountain of barang (luggage) - A rough list of what we have: 30 kg of rice, 5 kg of sugar, a carton of super mie (instant noodles), several tins of oatmeal and powder milk, a carton of timpis and corned beef, a carton of beer(!), a carton of fruit juices, 8 doz batteries, 280 litres of kerosene and 60 litres of petrol (for the outboard motor - it uses kerosene). Not to mention our personal gear, tent, mossy nets, buckets, cookware etc. - plus the coconuts and mangos we picked up at the deserted village of Mundun yesterday (deserted cause the area ran out of sago!) We went to a large lake - swamp for several hours last night paddling in search of crocs with no luck. We came upon 2 rusia deer, one big stag that Frans stalked with his bow-we got real close but the grass was so high you could only see antlers - so no venison, bac to timpis. We really baked in the boat on the 4 hours trip up here yesterday. There are big stands of bamboo around us and it was so hot you could hear loud pops every now and then as segments split open from the heat. Have seen several more Goulds monitors and 3 goura pigeons, very close at the river edge - magnificent! locally called "nambruk". The villages we've been to so far are all re-made in some sort of standard for Indonesia with all the houses the same style as you find in villages in Java with a road lined with fence posts running from one end to the other, kept very clean with the only mess being the ubiquitous dog shit. Around sundown the dogs start their howling and its quite a din when 50 or a hundred or more all get into it at once.

Next morning - on the river bank with my lychee juice & biscuit "bed tea". We've been averaging 5 hrs sleep a night and the days are too hot and flyey for sleep. Last night was the third night of survey on the network of lakes, swamps and rivers around the Berau R. without seeing a single croc. But of course these are heavily hunted areas. The nights are

beautiful and cool and in the dugout (though cramped and shaky and your butt ~~hunts~~ after a few hours) you can hear all the night sounds - owls, frogs and sometimes ~~even~~ day bird calls, woken up by our light or their own nightmares. Fish leap away from the canoe and light, sometimes real big ones which never fail to make the heart jump. Last night after returning, Paul went back into the forest with Theo and they came back in an hour with a half grown wild pig so we feast today and can save our tarpis for another time. We re-visited the huge megapode nest yesterday afternoon and Theo burrowed down into the top of it and found 5 eggs. But best of all we found two new hatchling megapodes and after photos put them on the edge of the mound. They promptly flew away like they'd been doing it for years! Last night we had a real tasty megapode outlet with chopped onions and garlic to go with our rice. The two small embryos that were found Theo gulped down with gusto. A turtle, Emydura I think, just crossed his herd out of the river for a peek then quickly back in when he saw what was sitting here. This afternoon we head way upriver to the Hendup, a tributary of the Biau close to the PNG border. The area is still supposed to have lots of crocs but I'm getting a bit cynical.

Next day - I've come into the forest to escape the flies but the nozzies are too bad so I'll just zip back and do my writing in fly heaven-god I'm surety! It will probably rain. Back on my bamboo porch by the Biau allowing the flies to pick at whatever little cuts they can find. Forgot to tell you about our trip to Huting when the launch dropped us. We had to cross a vast grass swamp across which there was allegedly a path but we got out into the middle of one of those floating islands of grass scapes & I was sinking with cameras and all so we yelled to the village and a canoe was pulled out to get our stuff aboard. Then it was an 8 km walk and a mere four rivers to swim (the tiny canoe took our stuff) to get to Huting - song of the day: "Many Rivers to Cro-ho-hoss." Anyway at Huting we first did the courtesy visit to the police (the Commandant is a keen hunter & though we arrived at 2:30 (after office hours) he took us to his empty office and stamped the back of my surat jalan ("travel letter"). Then the military man who came back from his bath in the river, towel wrapped around, stamped his stamp. Then the village headmen - a fine Melina man who thanked us for taking interest in his village and people and finally, at 8 PM, the chieft, the political head of the area. Then it turns out that the only lorry around which could have taken us back to where our gear was at the river (Ulilin camp) had gone back to their transmigration base camp. So we ate a lot of biscuits, a big pineapple, drank coffee and headed on down the brand new road bulldozed through the forest to pave the way for several thousand Javan families to move in. 22 hrs later, at 2 AM we arrived (me very foot-sore with a big toenail looking like its going to shed itself) and plunked down for a dead 5 hour sleep. We saw 3 forest wallabies very close up on the way, the real dark variety. They'd run a ways into the forest and thump their big hind feet in agitation. No snakes the whole distance though I sure expected to see some.

Last night we finally made contact with the wild croc population. After passing through some beautiful upriver forest (the flat lake grass lands are getting a wee bit monotonous), we got up into the Mandub River which heads straight for the Fly River only 60 km away. Abruptly we started seeing crocodiles and saw a bunch of smallies and after dark several largish ones let us get pretty close. Then the river started being full of dangerous logs (the inflatable boat suddenly is ultra-vulnerable) and our fuel was running low so we headed back to arrive downriver at camp just before midnite in a raging rain. Caught one little freshie to take pics, all in all a good sortie and the first real lesson in croc surveying for Paul & Chadiz. Thank god there are some crocs. I was begin ing to wonder! We just have to concentrate on getting as far upriver as possible. We now await the delivery of a 200 litre barrel of kerosene by dugout so we can continue surveying the upper reaches of the Biau and its tributaries. Tonight I guess will be a "rest night" devoted to deer hunting and other food gathering activities. I'll drink a ritual two beers and listen to the news & a bit of rock on Radio Oz from Cairns or Townsville & maybe look around the forest a bit-what a life. The meg-rode nest had ticks or mites on it and we are itching in those hard to reach spots again-that old familiar itch. Next day - At one village we had watched a guy catching barbundu with small live fish. Yesterday I tied together some bits of plastic string and a piece of lead above a hook and tried pulling it through the water from the canoe-it worked! The first was a smallish one but yesterday evening and this morning I got three, 1 of them over 5 kg and the biggest nearly a metre long. Quite a sight watching them leap and needless to say the meat is sumptuous. It's 8 AM I'm sweating like a pig and talking about pigs our daily visitors have arrived to clean up the camp. A big mother pig and her two kiddies come two or three times a day from the forest (the villagers let them run loose, they eventually return home) and grunt around the camp. The other night Frans arrowed a deer and piggies had a field day with the insides - mmmmm ran off into the forest with the antlered head firmly and incongruously in her big jaws (she's really big!) so we are eating well-our rice and C-rtical will hold out and we don't have to mess with the tinned meat and fish thank god. Saw a lot of turtles yesterday evening while fishing; also a couple of file snakes - all coming to the surface as the sun goes down. Paul has gone down river to Ullin with Theo to see what happened to our fuel - it was never delivered by canoe as promised. The pigs here seem almost human, grunting and talking and complaining as they walk through a camp or village and people even talking to them sometimes. As you can imagine the croc traders are ripping the people off, the price for skins up this way is Rn.1500 per inch (\$1.50) while the export value is close to \$8. Hunting is heavy, mainly for the big ones. A lot of the Muting hunters (like the 3 guys with us now)considered it regular practice to hunt in PNG and take big skins back to Irian and sell little ones in PNG. On rivers where the trees and bushes next to the river present problems while hunting, they are cleared to make the crocs accessible. Most of the villagers though say they would stop killing big crocs if offered a good price for the young ones. Last night we had one pisser of a storm and the tent was real nice and cosy to sleep in the rain - particularly without Paul who snores like a bloody rheumtoid asthmatic elephant.

This morning everything is soaked and as I walked down to the river I slipped and fell flat on my back hard, much to everyone's delight. There must be 100 flies on my back right now but as long as they stay out of my ears and face, let them do what they want. I guess I'll have a bit of tea and walk to the forest to escape.

Another early morning - on my watch it says the 22nd but don't know what day of the week it is. At 5AM it's tempting to stay in the tent, seeing and hearing the flies on the net over the door you just want to delay. So I sorted through all the stuff I have to take along on our 6 hr. trip up to the upper Biau today. The rains have been starting with a vengeance and the river is rising with ugly looking logs floating down which are no fun for the boat and motor. My bamboo echo from cuts from the fishing line - my improvised lures made with bits of plastic string are effective and the bowfin are smoking away on a slow fire. Yesterday evening Paul used one of his aluminum fishing bricks to catch big "udang", the freshwater shrimp (cray fish really, with long pincerred arms) and we had quite a stew for dinner. This must be the most bird, frog and insect noisy place in the world. There are naturally peaks in the morning and evening but more or less all day and much of the night there are megapodes, parakeets, jays, cuckoos, cockatoos and on and on squawking and whistling away. Almost caught a beautiful baby monitor and am seeing plenty of skinks but snake-wise haven't seen anything but a few file snake heads popping out for a breath and a pop-eyed peck around at the world. Another day - the 23rd - and we are all pretty groggy after a 80 km run up into the upper Biau with logs in the river and dark moonless sky and only 7 crocs showed themselves. A while after we got back the rain that the frogs were predicting arrived in the form of a lightning storm that nearly blew the tent over. It was nice and cool afterwards and we "slept in" almost till 7. Franz and Teo pushed off early and came back from the forest with a arrowed megapode - the birds are really dumb and the hunters can get real close - Franz made a small whistle from a large hollow seed to attract them - works like a charm on the poor buggers.

Sitting on my usual perch, the bamboo platform overlooking the river - the flies are no less voracious but wafts of breeze come over the water now and then. Today we rest and do the upriver bit up another tributary tomorrow. Am contemplating making a bamboo cage type trap for the big udang - something nobody does here but there are millions of them to be caught. Few days later - 27th we are back in the fair village of Huting - a letdown after the jungle. We are staying at the Pastor's temporary residence - he comes up several times a year from Herakle. He's here now, Father Benonbrook, Dutch, with little English (he drinks coffee and smokes all day and his motto is "no coffee, no tobacco, no alleuria!"). We are waiting for the little Cessna to arrive which won't be till day after tomorrow morning - a long time to wait in a village like this. The last few nights of survey were up as high as we could go on the Mandau, Zurnuf, Biau and Mill rivers - way up where the logs across the streams made the going very difficult and interesting - sometimes we were carrying the boat and sometimes almost submerging it to squeeze under a big tree across the water. But it's where we saw the most crocs, and the

biggest ones. Often they were off the stream in a side pool or tributary and would come leaping into the stream ahead, behind or even almost on to the boat as the motor noise scared them. Up in these "hulu" (upriver) areas we also saw the most birds. Kipbruki (gouras) were real common with their booming drum calls at sundown and their wing beats sound much like hornbills, heavily swishing the air. We would take off each day around noon to get up high in the river by sundown and each time we'd set off the rain storms would break and we'd be soaked (even with raincoats) in the first five minutes. But we'd usually dry out by evening and make a fire to complete the drying out and cook up a batch of noodles and chew a bit of smoked deer or barramundi for a quick evening meal before starting down river. On Kali Hill, the last and most picturesgue of the streams we visited we saw lots of water dragons (the big Physignathus lesuerrei) on the low overhanging Barringtonia trees (the "mangroves" of the freshwater) which would dive straight down into the water as we got near. We never could quite catch any though. The other evening after a heavy rain, braving the newly emerging and ravenous leeches, I took a walk from camp and saw lots of tree frogs calling to each other and the poor guys had Rossies buzzing around them and sucking their blood. Just about 30m. from our camp fire I surprised a forest wallaby - a big fat (may be pregnant female) one which I watched quietly for a long while just a few metres away from me. I then chased it away so our friends who were smoking around the fire wouldn't put an arrow into it. I made one more fishing sortie, taking the dugout before the others woke up, upriver just a few hundred metres to where a swamp stream drained into the main river. The barramundi were biting fierce and I lost several as they tore into the heavy grass near the shore, cut my finger as the line burned through it and straightened the hook on one big one, finally landing one of 6 or 7 kg. Very exhilarating to catch your own food so easily!

29th-well the little Cessna is coming at 10 AM to get us according to a radio message yesterday so we are getting all our gear-boat, motor, bedding, cooking gear, tent, petrol jerry cans et al - packed up and ready to carry to the airstrip which is located on another bit of high ground such as this village of Nuting is on, separated by a big swamp over which has been built a long long "bridge" out of wood. I will close this letter now so that I can give it to the pilot to carry back to Jayapura with him for possible

In September 1964 I went to India's northern-most state of Jammu and Kashmir to locate and photograph the Himalayan pit viper (Agkistrodon himalayensis Gunther). My search began in and around Dachigam National Park, 22 km from Kashmir's capital city, Srinagar. After four days of surveying the lower areas of the park and talking to local people it seemed fairly certain that the species did not occur in the area. This was not surprising since, at 5,800 ft, it lies well below the species' preferred altitudinal range of 7,000 to 10,000 ft (Wall, 1910). The closest locality where A. himalayensis had been collected previously was the Lidda Valley near Pahalgam where Wall (1899) found the species to be "exceedingly common" and was able to collect 39 specimens one summer. It was in this area that I searched next, and was almost immediately rewarded. On 16th September I collected two pit vipers, a male and a gravid female. Four were seen totally, in 'pohur paajan' at about 7,500 ft.

Table 1: Details of the two A. himalayensis collected

Sex	L, S-V	L, tail	Wt.	Remarks
M	350 mm	65 mm	18 gm	-
F	440 mm	60 mm	40 gm	visibly gravid

L = Length S-V = snout to vent

Pohur Paajan is approximately 11 km east of Bakhote, a small village on the Anantnag-Pahalgam road. The name means 'Pohur basket'; pohur is the local name for A. himalayensis. The place is, incredibly, a micro-habitat created specifically for the pohur by, legend has it, a Muslim saint Zuhri-Shah Sahib over a hundred and fifty years ago. Situated on a flat area on a hill slope, is an assemblage of rocks piled one on top of the other and arranged in a rough circle. The inner diameter of this enclosure is 4 m; the 'wall' is 1 m high. The stone circle has a tail about 6 m long and a meter wide also comprised of rocks. The crevices in these provide shelter for the only other reptilian inhabitant, the little Himalayan skink Scincella himalayana. The lower rocks have deep gaps underneath in which apparently the vipers live. Inside the circle is a profusion of grasses and plants, a strong contrast to the sparse natural vegetation of the area.

During the three hours I spent at PP I saw four pit vipers and seven sloughed skins. The first snake was seen almost immediately on arrival, at 12.45 hrs. It shot into a gap under a big rock in the centre of the circle from a nearby patch of grass, apparently on seeing us. The gap was an inch and a half high at the mouth, gradually becoming shallower, and 14" deep. Snakes 2, 3 and 4 were all seen between 14.20 and 14.30 hrs. Number 2, about the same size as no. 3, also escaped into a burrow from a nearby patch of vegetation. A careful search of the place revealed no. 3 tightly coiled under the broad, low leaf of a 'sholur' plant

(*Scaphiopus* sp.). Along with no. 4 which was discovered under another leaf of the same species, it was captured by pinning the head, and bagged. Ground temperature under the leaf at 14.30 hrs was 26 C.

Remarks

Both snakes conform to the colour description provided by Smith (1943). The smaller male is however the brighter of the two. They are very alert and appear to dislike exposure to light. At no time have they attempted to bite, despite extreme provocation.

Remarks

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THE LEGEND OF ZUHN SHAH SAHIB

The following legend was related to me by several people in Kashmir. Having subsequently had the opportunity of visiting the relevant places I find no reason to doubt its veracity.

It is said that the small village of Aishmuqam, halfway down the present day Anantnag-pahalgam road was once infested with Himalayan pit vipers (locally known as 'pohur'). The snakes were concentrated mostly in and around a hill cave on a nearby hill and villagers were often bitten. Quite naturally, they retaliated by killing the snakes on sight. This unpleasant stalemate continued till, according to the legend, the arrival of a Muslim saint by the name of Zuhn Shah Sahib. The saint, obviously a man of wisdom and compassion, solved the snake-human conflict. He collected all the pohurs he could find in the area, taking special care to clear out the cave which was their stronghold. Putting them in a basket, he transported them to another hill many miles from human habitation and liberated them. That spot became known as 'Pohur pajan', literally, pohur basket, for the basket in which the snakes were carried a hundred and fifty years ago.

I visited Pohur Pajan on 16 September '84, getting there after a strenuous four hour walk from the village of Batkote. What I saw impressed me deeply. Not only did the thoughtful saint set the snakes free, he actually ensured their survival by constructing a suitable microhabitat on that barren, wind-swept slope!* If not for this the snakes may have perished.

To the nomadic sheep herders of the region, the rugged gujurs, Pohur Pajan is a holy site. Gujur families passing through the area stop at Pohur Pajan to make offerings of milk and rice to the revered pohurs. To be sure, the people of Aishmugam have also done their bit to immortalise their saint. On the hill slope facing the road, enclosing the cave which was once the home of the dreaded pohurs, stands the Zuhn Shah astana (temple), a symbol of their gratitude.

* for a description see previous article.

Acknowledgements

My grateful thanks to Dr. Roger Conant for giving me an opportunity to undertake this trip. Mr. Mir Inayat Ullah, Chief Wildlife Warden, Kashmir, and his staff assisted in every way possible and have earned my eternal gratitude.

Shekar Dattatri

Crocodile Conservation and Management Conference Darwin,
Australia January, 1985

A week long gathering of crocodile farmers, administrators, and scientists was held in Darwin this January, sponsored by the

The conference was a successful attempt to summarize recent scientific advances in crocodile husbandry and related research. The papers aptly demonstrated that laboratory findings are highly relevant for the relatively new science of crocodile farming. The proceedings will be published in the form of a book.

Attendees of the conference had the opportunity to see several crocodile farms in Northern Territory and the aboriginal crocodile farming project at Edward River on the remote Cape York peninsula.

In general, Australia's advanced programme - of research on and now management of crocodiles there is very impressive. Most populations located in suitable habitats are recovering, nuisance animals are efficiently dealt with by the Conservation Commission (Northern Territories) and there exist ongoing research and population monitoring programmes. With this background Australia has applied to CITES to relist their C. porosus population from Appendix I to Appendix II to enable limited usage of the farmed and ranched crocs there. By the time this newsletter is sent the decision will have been made at the CITES meeting in Buenos Aires.

A representative selection of papers presented at a Technical Conference on Crocodile Conservation and Management

- a) Crocodile Management - India - R. Whitaker
- b) Diseases and disease control on crocodile farms in Zimbabwe - C. Foggin
- c) Conservation and management of the gharial, Crocodylus porosus - M. Subba Rao
- d) Survey methods and monitoring - P. Bayliss
- e) Population models and crocodile management - J. Nichols
(read by A. Smith)
- f) A photographic technique for size and species determination of crocodilians during spotlight surveys - D. Chacquet
- g) Determining the age of wild crocodiles - J. Hutton
- h) Crocodiles and the public in India - I. Singh
- i) Physiological effects of capture - R. Seymour
- j) Capture methods for the Nile crocodile in Zimbabwe - J. Hutton
- k) Hormonal control of reproduction - V. Lance
- l) Yolk rotation and opaque banding - G. Webb
- m) Sex determination - H. Ferguson

RATE

The Irula Co-operative's rodent control programme, started in January this year with a grant from OXFAM, is attracting enquiries from farmers, poultry keepers, gardeners and plantation owners from far and near. Our Rodent and Termite extermination Service, RATS for short, may in fact soon become the most sought after pest control agency for its many virtues - cost efficient efficacy and, not least of all, no use of pesticides.

At a conservative estimate, there are 5 rats to every human being in many parts of India such as the rice rich Thanjavur district. The annual loss of food grains alone due to rodent damage in India is said to be to the tune of Rs.800 crores. Conventional control programme currently in practice are extremely expensive and of dubious value. During one such operation in Lakshadweep, Rs.14, was spent for each of the 2498 rats killed! Crop specialists and biologists alike agree that the millions of rupees worth of rodenticides being used every year have little long term impact on rodent populations. The much touted Warfarin has almost no effect on resistant rats, and the widely used zinc phosphide induces bait shyness.

The expansion of agriculture, year round cultivation and use of worthless chemicals which only kill off useful natural predators have all helped rodents enormously. Meanwhile, Ministers and M.P.'s argue in the assembly and ask "How to kill the rats?" (The Hindu, 10.4.85). Ultrasonic sound equipment? Live wire fences? Carts?

Enter the Irulas. To these hunter-gatherers rat catching is a way of life. For centuries the Irulas have hunted rats for food. Their astounding - and esoteric - knowledge of the behaviour and habits of rats makes them without doubt the best rat exterminators in the world. Farmers in Tamilnadu have in fact known the value of Irulas as rat catchers for centuries and have developed a symbiotic relationship with them. But this is the first time that a systematic and scientifically sound service is being offered. Our message: "How you can put out a contract on your pests!"

The contract:

Upon request the RATS manager visits the site, makes an assessment and fixes up a one year contract. Then at predetermined times of the year (2 to 4 times according to the contract) he takes an Irula team comprising of a minimum of 4 ratcatchers to the site. Using specialised traditional techniques such as digging out, shooting out, netting, and spearing the Irulas systematically hand capture every rat they can find. Initial trials so far indicate that this approach may be the most effective way to tackle the rat problem. The first year will be devoted to research and hopefully that will give us quantified scientific data to replace empirical observations.

Shelar Dattatri

CASE HISTORY OF A SNAKE BITE

Patient: Neela, 22 years old, 36 weeks pregnant.

History: Neela, her husband, two year old child and two others were sleeping on the verandah of a house in Padappai, a village outside Madras. At 3.30 A.M. on 20 August, 1954 her husband woke up hearing her scream. He switched on the light just in time to see a dark coloured snake about 1 metre long moving away. The snake escaped before he could kill it but was recognized as a krait (*Bungarus c. ceruleus*). The bite being on the leg, a tourniquet was loosely tied around the thigh. Then half supported by her husband Neela was taken - nearly a kilometer away - to a villager who could purportedly cure snake bite. The villager gave her some herbs and advised removal of the tourniquet.

Hearing about the incident at 7.15 the same morning I rushed to investigate. Upon examination of Neela's bitten leg I found two fang marks antero-laterally in the upper third of the right leg. Neela was fully conscious and there was no sign of oozing, oedema or discolouration. The specific symptoms were: 1. Ptosis of both eyes 2. Salivation 3. Inability to swallow even a teaspoon of water 4. Severe abdominal cramps 5. Thread pulse - irregular and weak 6. Nausea. The overall condition was bad, and deteriorating.

Treatment: One ampoule each of Avil, Betnesol and polyvalent anti-venom serum was administered immediately. Oral pain killers could not be given as the patient could not swallow. She was then put in a vehicle and taken to the Government Royapettah Hospital 40 km away. At 9.30 A.M. she was admitted to the Intensive Care Unit. She was administered anti-venom serum, Betnesol and Coramine. As cardiac arrest seemed imminent, oxygen and external cardiac massage were applied, but in vain. She died at 10.30 A.M. exactly 7 hours after being bitten. Her people swore that had she been taken to another medicine man further away she would have survived!

Neela is one of about 10,000 people who die of snake bites every year in India. Until the Government makes anti-venom serum widely available, accessible and publicised, thousands of people will continue to die needlessly.

Mrs. Margaret Davidar,
General Physician,
Padappai.

MARINE TURTLE DRAIN

Although marine turtles are protected under Schedule I of the Indian Wildlife (protection) Act of 1972, they continue to be items of trade in the turtle markets of West Bengal. The commonest species in the markets is the olive ridley (Lepidochelys olivacea), though hawksbills (Eretmochelys imbricata) turn up occasionally.

Most of the turtles are caught off the coast of Orissa and transported by trucks to Howrah with their flippers and feet wired or stitched together. At Howrah the turtles are sold to retailers for Rs.60/- (U.S. \$5.00) each. The retailers in turn sell them to the consumers at Rs.6 to 8 per Kg. Unlike freshwater turtles, marine turtles are not sold in the Calcutta markets. Instead they are sent to the suburbs, nearby towns and villages, including Canning in the Sunderbans, where they are sold in the markets openly. Most of the customers for marine turtle flesh belong to the lower income group for whom the meat is a source of cheap protein.

Some statistics: Before 1981, 6 to 7 truck loads of sea turtles used to arrive in Howrah every day, each load containing between 125 and 150 turtles. The influx generally started in November and continued till March with a peak from late December to early March. At a conservative estimate at least 80,000 sea turtles (almost all olive ridleys) came into Howrah alone each season. The male/female sex ratio in a sample of 200 olive ridleys in Howrah was 7:3.

In the 1983-84 peak season (perhaps due to increased vigilance on the part of the Orissa and W. Bengal Forest Depts.) only one truck load of sea turtles came into Howrah everyday. However, the tide is far from having been stemmed. If the 1984-85 figures are anything to go by, poachers continue to operate with impunity (& immunity?).

Indranil Das
18/20, Ballygunge Place (East)
Calcutta - 700 019

The freshwater turtle trade in

MADHYA PRADESH

Howrah in West Bengal has traditionally been the main fresh water turtle market in India. The merchandise is caught in the rivers of many northern states and transported to Howrah by train. That Bhopal city in Madhya Pradesh is one of the major exporters of this favoured commodity became evident from a market survey between 1979 and 1982. A large number of softshells, mostly Trionyx gangesicus and Lissemys punctata and the hardshell Indochina sexata are caught from the Betwa and Parbati rivers and local lakes by means of baited hooks. While the bulk of the catch is sold to middlemen to be exported to Howrah, a small portion is marketed locally for consumption, mainly by the Bengali community. A whole turtle may sell for Rs.5 per kg. of body weight, fetching upto Rs.150/- for a large softshell. Retail prices range from Rs.5 - 10 per kg.

Although the trade is year round, the peak season is between October and January. During the lean months auctions are conducted only when sufficient numbers of turtles have accumulated. The main weekly markets in M.P. (local consumption) are at Piplami, Habibganj and Bherkheda. The chief export market is the Itwara Fish Market.

All the three species mentioned above are protected under Schedule I of the Indian Wildlife (Protection) Act, 1972 and it is heartening to note what appears to be a decline in the trade here - a result of Forest Department vigilance. Incidental catches in fishing nets still get to the market regularly but there is reason to hope that even this will cease if more pressure is applied. In June 1984 an oldtimer in the turtle trade at Habibganj market told me: "ab kachuga marna mana hain" (turtle killing is prohibited these days).

While the change in the situation is most welcome, the following measures are still considered necessary for implementation:

1. Railway authorities should not accept turtle consignments. Any consignments brought to them should be immediately reported to the nearest Forest Office.
2. The turtle markets, especially the export market to West Bengal should be checked frequently. Any turtles found should be seized and released in suitable (and, if possible, protected) habitat.

R.J. Rao
Research Fellow
National Chambal Sanctuary
P.O. Box 11
MORENA - 476 001
M.P.

Papers presented at Symposium on Endangered Marine Animals
And Marine Parks:

E.O. Moll. Estuarine turtles of tropical Asia: Status and management

P.J. Schwartz. Sea turtles as possible dispersal agents for fish otoliths

Ross Witham. Managing Florida (U.S.A.) sea turtle populations

Romulus Whitaker. Rational use of estuarine and marine reptiles

P. Mohanty-Hejmadi, M. Behra and Marie T. Dimond. Temperature dependent sex differentiation in the olive ridley Lepidochelys olivacea and its implications for conservation

Rathin Banerjee. The marine turtle Lepidochelys olivacea Eschscholtz, its occurrence and captive rearing in Sunderbans

E.G. Silas, K. Rajagopalan, S.S. Dan and A. Bastian Fernando. On the continued exploitation of olive ridley Lepidochelys olivacea and its second mass nesting at Gahirmatha, Orissa during 1984

Frank J. Schwartz. Sea turtle body-organ weights: Their relationships during growth and responses to the environment

P.N. Ponnuwany and Abdul A. Rahaman. Captive rearing of hatchlings of live ridley Lepidochelys olivacea at Point Calimere, Tamil Nadu.

Abdul A. Rahaman, P.N. Ponnuwany and K. Rajendran. Recovery plan for live ridley Lepidochelys olivacea and at Point Calimere, Tamil Nadu

Brian Groenbridge. India's sea turtles in world perspective

S.H. Raut and N.C. Mandi. Present state of marine turtle conservation and management in West Bengal

Pen. Sirainoote. Observations on the Gharial turtle Chelonia mydas along the Gujarat coast

S.N. Kar. The status, conservation and future of the Saltwater crocodile Crocodylus porosus Schneider in Orissa.

AN INSTANCE OF A MALE MUGGER MOUNTING A NESTING FEMALE AT
MADRAS CROCODILE BANK TRUST

On 26 February this year a nesting mugger (*Crocodylus palustris*) closing up her nest was approached by an adult male conspecific who mounted her and then tried to copulate with her. Although we have often observed marsh-crocodiles of both sexes come close to a nesting female this is the first time an attempted copulation has been observed. The entire sequence of events is given below:

2240 Hrs : Male approaches female filling up nest cavity.
2240.30 : Male touches female's cloacal region with snout.
2242.00 : Male rubs snout against female at her mid-body and moves upwards.
2243.00 : Male places his snout under female's. Female responds by raising her head.
2244.00 : Male mounts female who is still trying to push sand into nest cavity using her feet; Male positions himself over her and attempts to bring his tail under hers but does not succeed. Male stationary with occasional attempts to push his tail under female's.
2246.30 : Female gives up attempts to push in sand; appears exhausted.
2259.00 : Male chased away by observers. Female resumes normal nest nesting activity.
2357.00 : Female completes nest closing.

V. Shyam Sundar &
A. Seit.

NESTING ACTIVITY AT MADRAS CROCODILE BANK TRUST

Mugger (*C. palustris*) nesting this year has started earlier than usual with the first nest laid on 3rd February, the earliest nest in the last 10 years. At the time of writing 20 nests have been laid and we expect at least 2 more. Detailed observations and photographic documentation are being carried out and a wide range of temperatures are being recorded at the time of laying. Nest marking is done at the time of removal of eggs (usually 12 hrs. after laying). Eggs are measured and then transferred to incubators.

V. Shyam Sundar.

REACHING THE PEOPLE

The exciting moments of confrontation with nature's wonders are still fresh in my mind as we work on the final stages of our company's pilot production, "Snakebite!" Before the start of the film project, I was terrified of and ignorant about snakes, like most people. But as I learned about snakes in the planning stage, and saw our snake experts at work, my fear turned to wonder. To see the cameraman's (my husband, John!) face merely a foot from a hooded cobra, and to see our snake expert (Rom Whitaker) handle a fresh wild Russell's viper only put me ~~to~~ ease. Most people, however, have not had the opportunity to see venomous snakes being handled or to learn about these widely feared animals. During the shooting of "Snakebite!", spectators invariably left when the snakes came on the scene. There is no doubt that snakes can be dangerous but one can avoid contact with them by learning about their habits and habitats. Equally important, one can learn to deal correctly with a confrontation, should it happen. The purpose of "Snakebite" is to replace fear with knowledge and create a healthy respect for snakes. Its' message could save thousands of lives. In ten years, the Madras Snake Park had reached ten million people with this same message. Yet, "Snakebite!" can reach the same number of people in a single national television screening! This power of the media must be taken advantage of in the field of environment education.

It was with this idea in mind that we have formed Conservation Media Services (CMS). As in "Snakebite!", CMS will use it's expertise to inform the people of India about important environment and wildlife issues.

At present, CMS has a film production unit, capable of producing international quality films. Film is the logical medium to reach rural masses. It is undoubtedly the most popular entertainment, with a vast distribution network already in place. One project being developed is to make an entertainment feature film with an ecological theme. Done in the popular cinema format, this has the potential of reaching millions of people with important conservation messages.

In addition to film, CMS is equipped to make 1/2 inch video tapes. This is especially useful for documentation of research done in the field of wildlife and environment. For example CMS has now made a video programme on the research being done at Madras Crocodile Bank Trust by Dr. Jeff Lang on the mugger crocodile.

Print media is also a priority. Regularly, articles for different national and international magazines are published. Rom and Zai Whitaker are presently writing a children's book on snakes, to be published shortly.

S U B S C R I P T I O N

Local : Rs. 15 annually

Foreign : Dollar 5 annually

Cheques should be made to HAMADRYAD.

MADRAS CROCODILE BANK, VADANEMMELLI VILLAGE, PERUR P.O. MADRAS 603104



Vipera lebetina

Photos : SHEKAR DATTATRI

HAMADRYAD is edited by Zai whitaker. This issue co-edited by Shekar Dattatri and Rom Whitaker. Information presented here may be used elsewhere with acknowledgement to Hamadryad